〔*Chem. Pharm. Bull.*, **38**, 3167 (1990)〕

Two New *neo*-Clerodane Diterpenes in *Ajuga decumbens*

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Study on the chemical constituents of *Ajuga decumbens* resulted in the isolation of two new minor *neo*-clerodane diterpenes, ajugacumbins E and F, together with a known diterpene, ajugamarin and an iridoid, 8-acetyl-harpagide. By means of spectroscopic analysis, structures of the new di-terpenes were determined to be 1α, 3α, 6α-triacetoxy-4, 7-epoxy-18α-(2′-hydroxy-3′-methylene-butyryloxy)-*neo*-cleroda-13-en-15,16-olide for ajugacumbin E, and 4α, 6α-dihydroxy-4β-hydroxymethyl-18α-tigloyloxy-*neo*-cleroda-13-en-15,16-olide for ajugacumbin F.

〔*Shoyakugaku Zasshi*, **44**, 196 (1990)〕

Seeds Biology of Medicinal Plants (X) Variations of Alkaloids in the Process from Ripening to Germination of *Coptis japonica*

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The seeds of *Coptis japonica* MAKINO var. *dissecta* NAKAI mainly contained protoberberine type alkloids—berberine (**1**), jatrorrhizine (**2**), coptisine (**3**), palmatine (**4**)—and benzophenanthridine type alkaloids—sanguinarine (**5**), dihydrosanguinarine (**6**). Time causes variations of these 6 alkaloids contents in the seeds during the process of ripening and the germination were investigated. The amounts of **1**-**4** started increasing in November. Since the seeds began to germinate, in December, it suggested that those protoberberine alkaloids contents were related to the growth of embryo. The amounts of **5** and **6** did not change.

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Localization of pulmonary carbonyl reductase in guinea pig and mouse: Enzyme histochemical and immunochemical studies.

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The localization of carbonyl reductase in guinea pig and mouse lung by enzyme histochemistry and immunohistochemistry, using antibodies against the guinea pig lung enzyme which crossreacted with the lung enzymes of both animals. The enzyme activity was detectble in the bronchiolar epithelial cells of small airways and in alveolar cells. In the immunohistochemical staining, the reaction was strongest in the Clara cells and was weak in the ciliated cells and type II alveolar pneumocytes. Injection of a single dose of naphthalene led to significant impairment of carbonyl reductase activity and of microsomal mixed-function oxidase activities in mouse lung, with a marked decrease in both activity and immunoreactive staining in the bronchiolar epithelial cells